Amendment to the Specification

Please replace the title to read

GENETIC ENGINEERING OF PLANT CELLS TO PROVIDE ENHANCED ~~MULTIPLE GENE~~ EXPRESSION ~~FOR ENGINEERING NOVEL PATHWAYS AND HYPEREXPRESSION OF~~ MULTIPLE ~~FOREING~~ FOREIGN GENES ~~PROTEINS~~ IN TRANSGENIC PLASTIDS UTILIZING A SINGLE TRANSFORMATION EVENT. ~~PLANTS~~

Please replace the paragraph on page 1 under STATEMENT REGARDING FEDERALLY SPONSORED FEDERAL RESEARCH with the following:

The work of this invention is supported in part by the USDA-NRICGP grants 95-82770, 97-35504 and 98-0185 to Henry Daniell at Auburn University.

Please replace the paragraph bridging pages 3 and 4 with the following:

Mercury is a toxic heavy metal that is commonly released into the environment as a byproduct of different chemical reactions of modem industries. The present world production of mercury is about 9000 tons/year ~~(http://www.chem.ualberta.cal.htm)~~. In the environment, mercury is rapidly methylated by methanogenic bacteria (Ex. *Desulfovibrio desulfuricans)* producing the 10 fold more toxic organomercurials (Compeau et. al.) 1985; Gilmour et. al. 1992). Organomercurials are more toxic due to its increased hydrophobicity, which allows it to cross lipid membranes because it is more hydrophobic than mercury. Over 90% of the intake of methylmercury is absorbed into blood compared with only 2% of inorganic mercury ~~(http://www.chem.ualberta.cal.htm)~~. Both organomercurials and mercury have the tendency to accumulate in the tissue, especially in the membrane bound organelles. In plants organic mercury crosses the lipid membrane of organelles, for example chloroplast, where it can poison essential oxidative and photosynthetic electron transport chains more easily than metallic mercury (Rugh et. al. 1996). In photosynthetic organisms, ~~mercuury~~ mercury affects the oxygen-evolving complex that is found in the photosystem II and is bound to the

thylakoid membrane (Bernier et al. 1993). Mercury treatment of PSII leads to a strong inhibition of oxygen evolution by removal of EP33 (one of the proteins of the OEE complex; Bernier et al. 1995). Mercury reduces the Fm and Fv values due to additional inhibitory sites on the donor side of PSII, including damage to the light-photochemistry (Rashid et al. 1990). Medical researchers discovered that high levels of methylmercury cause severe neurological degeneration in birds, cats and humans (Minamata Disease Research Group, 1968; Harada et. al. 1995). Thus, mercury and organomercurials are ideal targets for phytoremediation.

B3 Cont.

Please replace the first paragraph on page 4 with the following:

In water, mercury pollution also poses a problem. Mercury accumulates in the sediments of lakes and oceans where methanogenic bacteria live ~~(http://ehpnet.niehs.nih.gov)~~. These bacteria methylate mercury to produce methylmercury, which is eventually released into water (Harada et al.1995). The methylmercury is trapped into the small fish when the water passes through their gills or they feed on phytoplanktons that carry high concentrations of the pollutant. Predatory fish, as bass in fresh water and tuna in salt water, live for long periods of time feeding on smaller fish. During their life span, they can accumulate high levels of methylmercury that can reach 1.0 ppm in normal water and 30 ppm in areas of high pollution with mercury ~~(http://ehpnet.niehs.nih.gov)~~. Then, humans and birds feed on contaminated fish and accumulation in their tissue cause severe neurological damage.